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EXAMINER	
NORTON, JENNIFER L	

ART UNIT	PAPER NUMBER
2121	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/719,163	LONGSDORF ET AL.	
	Examiner	Art Unit	
	JENNIFER L. NORTON	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4-37 and 39-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4-37 and 39-53* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 August 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/15/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The following is a **Final Office Action** in response to the Amendment received on 07 December 2009. Claims 1, 36, 37 and 52 have been amended. Claims 2, 3 and 38 have been previously cancelled. Claims 1, 4-37 and 39-53 are pending in this application.

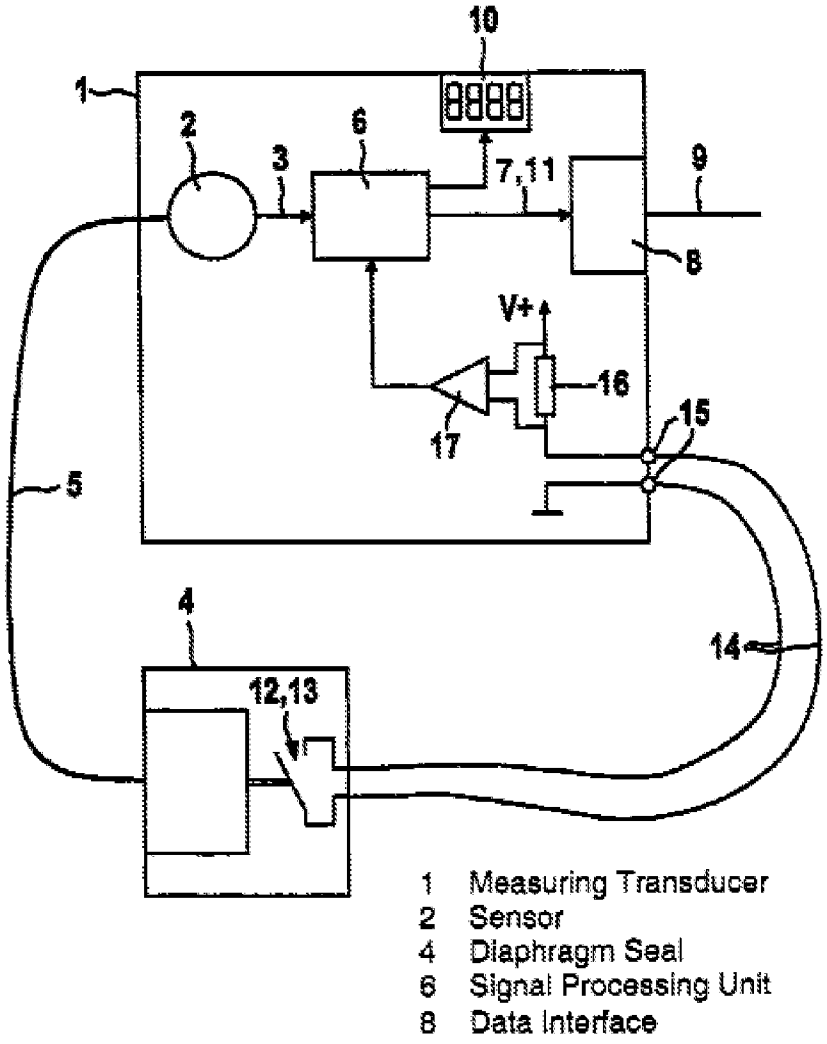
Response to Arguments

2. Applicant's arguments see Remarks pgs. 10-11, filed 07 December 2009 with respect to the rejection of claims 1, 4-37 and 39-53 under 35 U.S.C 103(a) have been fully considered but are moot in view of the new ground(s) of rejection.

3. Applicant argues that the prior art fails to teach, "retrofitting" (see Remarks pg. 10, paragraph 3); the Examiner respectfully disagrees.

> Flaemig teaches "The measuring transducer is preferably operated with an add-on device equipped with a monitoring unit, which monitors its functional state and is connected to the control input of the measuring transducer. If the functional state of the add-on device changes, in particular, in the event of a functional failure, the measuring transducer generates the associated error message signal." (col. 1, element 59-65)
>
> "The measuring transducer as claimed in claim 4, wherein the add-on device comprises a diaphragm seal, and wherein the monitoring device detects a loss of transfer medium in the diaphragm seal as a change in the functional state." (col. 3, lines 21-26)

Fig. 1:



In summary, Flaemig teaches to an add-on device comprising a diaphragm seal (Fig. 1, element 4), which is added onto a measuring transducer (Fig. 1, element 1). Hence, the measuring transducer (Fig. 1, element 1) is a retrofitted to a device (Fig. 1, element 4) of a system (Fig. 1) for monitoring of the device; thus Eryurek in view of

Flaemig in further view of Sederlund teaches to Applicant's claimed limitation of "retrofitting".

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1-8, 10-12, 15-42, 44, 45, 47-53** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,017,143 (hereinafter **Eryurek**), in view of U.S. Patent No. 7,054,765 (hereinafter **Flaemig**), and further in view of U.S. Patent No. 6,957,115 (herein after **Meyer-Grafe**) and U.S. Patent No. 6,647,301 (hereinafter **Sederlund**).

(**Eryurek** as set forth above generally discloses the basic inventions.)

Regarding independent claims 1, 36, 37, and 52 Eryurek teaches to,

- a transmitter for use in an industrial process, (col. 3, lines 9-12) comprising:
- a sensor module (Fig. 1, element 16) to couple to the process and measure a process variable (col. 3, lines 9-12);
- a feature module to couple to the sensor module, (abstract, col. 1, lines 44-64 and Fig. 1) the feature module including:

- a device interface to couple to the process device (abstract) and provide an output related to operation of a component of the process device (col. 1, lines 44-45; an input which receives a process signal);
- the device interface comprises of communication between the component of the device and a microprocessor of the device (col. 4, lines 11-28);
- a databus for digital data communication between devices/components (col. 2, line 65-col. 3, line 33 and Fig. 1);
- a component monitor in the process device (monitors the process and performs computations, col. 3, lines 22-25; col. 8, line 30-col. 9, line 14), to monitor operation of the component based upon the output from the device interface and responsively identify a safety event of the component (col. 8, line 30-col. 9, line 14; computing circuitry provides an event output … in response to, col. 1, lines 53-57; provide an event output, col. 1, line 44-64; rules are selected to detect events, col. 1, lines 44-64); and provide a safety event output (col. 1, lines 31-36; typically, … pressure is monitored and an alarm is sounded or a safety shutdown is initiated if the process variable exceeds predetermined limits) indicative of a failure of the component (col. 6, lines 21-42); and
- a safety response module in the process device to respond to the safety event of the component based upon the safety event output (col. 1, lines 31-36; typically, … pressure is monitored and an alarm is sounded or a safety shutdown is initiated if the process variable exceeds predetermined limits) in accordance with a safety

response (col. 6, lines 21-42; provide an event output and col. 1, line 44-64; rules are selected to detect events).

- Eryurek further teaches to detecting faulty device, identify device/component (Fig. 6).

Eryurek does not expressly teach to a Safety Integrity Level (SIL), retrofitting to an existing process device and a component monitor in the process device to monitor data carried on the databus.

Flaemig teaches to a component monitor (Fig. 1, element 12 of Fig. 1, element 1) to monitor operation of the device (col. 3, lines 21-26 and Fig. 1, element 4) and retrofitting to an existing device (col. 1, lines 59-65; i.e. the measuring transducer (Fig. 1, element 1) is a retrofitted to an existing device (Fig. 1, element 4) of a system (Fig. 1) for monitoring of the device).

Flaemig does not expressly teach Safety Integrity Level (SIL) and a component monitor in the process device to monitor data carried on the databus.

Meyer-Grafe teaches to a component monitor to monitor data carried on the databus (col. 2, lines 19-23 and col. 6, lines 47-54).

Meyer-Grafe does not expressly teach Safety Integrity Level (SIL).

Sederlund teaches to a Safety Integrity Level (SIL) (abstract, col. 1, lines 14-17, col. 2, lines 45-50, col. 9, lines 31-61, col. 12, lines 12-60, col. 22, line 52-col. 24, line 10) for the purpose of providing a rule set (col. 12, lines 12-60).

It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of **Eryurek** to include a component monitor to monitor operation a device and retrofitting to the device to increase the integrity of measurement by positively notifying false indications are caused by loss of a pressure transmission fluid, which could previously go undetected, as well as, providing error information for failure of external conversion electronics and software (Flaemig: col. 1, lines 66-67 and col. 2, lines 1-7); a component to monitor data carried on the databus to ensure the required safety criteria is fulfilled with a minimum amount of hardware redundancy in a safety-related automation bus system (Meyer-Grafe: col. 2, lines 4-7); and Safety Integrity Level (SIL) for the purpose of providing a rule set (Sederlund: col. 12, lines 12-60).

Furthermore, it would have been obvious to a person of ordinary skill in the art at time the invention was made to include a device (i.e. retrofitting device) which includes a device interface, component monitor and safety response module, and a databus of the process device which is used to transfer digital data between the component of the device and a microprocessor of the device since it has been held that forming in one piece an article which has formerly been formed in two pieces and put

together involves only routine skill in the art. *Howard v. Detroit Stove Works, 150 U.S. 164 (1893).*

Regarding dependent claims 21 and 28,

Eryurek teaches as set forth above to an apparatus wherein the component monitor is to monitor data carried on the databus (monitors the process and performs computations, col. 3, lines 22-25; col. 8, line 30-col. 9, line 14).

Regarding dependent claim 4,

Eryurek teaches as set forth above to the apparatus of claim 1 wherein the device interface comprises a sensor coupled to the process device (Fig. 1, element 16; sensor, col. 3, lines 9-12 and col. 4, lines 35-42).

Regarding dependent claims 5 and 40,

Eryurek teaches as set forth above to an apparatus wherein the process device couples to a process control loop and the sensor is to monitor current flow in the process control loop (col. 4, lines 38-42; diagnostic signal sensed by sensor and col. 2, lines 46-57; diagnostic signals include … electrical voltage, current …).

Regarding dependent claims 6 and 41,

Eryurek teaches as set forth above to an apparatus wherein the component monitor compares the sensed current with a current value (col. 4, lines 38-42; diagnostic signal sensed by sensor; col. 2, lines 46-57; diagnostic signals include … electrical voltage, current …, col. 8, lines 42-44; determines faulty).

Regarding dependent claims 7 and 42,

Eryurek teaches as set forth above to an apparatus wherein the safety response module controls the current in a process control loop based upon a safety failure (col. 4, lines 38-42; diagnostic signal sensed by sensor, col. 2, lines 46-57; diagnostic signals include … electrical voltage, current …, col. 8, lines 42-44; determines faulty and col. 6, lines 21-42; statistical parameter mean, current means).

Regarding dependent claim 8,

Eryurek teaches to the device interface (abstract and col. 1, lines 44-45; an input which receives a process signal).

Eryurek does not expressly teach a watch dog circuit.

Sederlund teaches a watch dog circuit (col. 7, lines 19-20 and Fig. 35).

It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of **Eryurek** to include a watch dog circuit for the purpose of providing a rule set (col. 12, lines 12-60).

Regarding dependent claim 10,

Eryurek teaches as set forth above to the apparatus of claim 1 wherein the device interface couples to a memory (col. 1, lines 44-46; input, memory).

Regarding dependent claims 11 and 44,

Eryurek teaches as set forth above to an apparatus wherein the component monitor is to detect errors in the data stored in the memory (col. 8, line 42–col. 9, line 10).

Regarding dependent claims 12 and 45,

Eryurek teaches as set forth above to an apparatus wherein the safety response module provides an alarm output (col. 1, lines 34-35; alarm is sounded).

Regarding dependent claims 15 and 47,

Eryurek teaches as set forth above to an apparatus wherein the safety response module attempts to compensate for the safety failure (col. 6, lines 21-42; defines the acceptable variations,).

Regarding dependent claims 16 and 48,

Eryurek teaches as set forth above to an apparatus wherein the safety response module corrects for errors in data in the device (col. 6, lines 56-59; adjusted by adjusting the sensitivity parameter).

Regarding dependent claim 17,

Eryurek teaches as set forth above to the apparatus of claim 16 wherein the safety response module interpolates between data points in order to correct a data error (col. 3, lines 15-33; adjusting value by changing the flow in pipe).

Regarding dependent claim 18,

Eryurek teaches as set forth above to the apparatus of claim 16 wherein the safety response module holds a previous data point (col. 5, lines 51-53).

Regarding dependent claims 19 and 49,

Eryurek teaches as set forth above to an apparatus wherein the sensor comprises a voltage sensor (col. 2, lines 42-64; electrical voltage … or any parameter … maybe detected).

Regarding dependent claims 20 and 50,

Eryurek teaches as set forth above to an apparatus wherein a current sensor (col. 2, lines 42-64; current … or any parameter … maybe detected).

Regarding dependent claim 22,

Eryurek teaches as set forth above to the apparatus of claim 1 wherein the component monitor comprises software implemented in a microprocessor of the device (col. 10, lines 2-5).

Regarding dependent claims 23 and 51,

Eryurek teaches as set forth above to an apparatus wherein the safety event comprises a possibility of a future component failure (col. 1, lines 34-36; exceed predefined limits).

Regarding dependent claim 24,

Eryurek teaches as set forth above to an apparatus wherein the safety event comprises a detection of a component failure (col. 9, lines 43-45; faulty device).

Regarding dependent claim 25,

Eryurek teaches as set forth above to a process variable transmitter including the apparatus of claim 1 (Fig. 1, element 12).

Regarding dependent claim 26,

Eryurek teaches as set forth above to the transmitter of claim 25 wherein the safety response module is implemented in a feature module which couples to a sensor module (col. 10, lines 2-5 and Fig. 2).

Regarding dependent claim 27 and 53,

Eryurek teaches as set forth above to the transmitter of claim 25 wherein the safety response module is implemented in a feature module which couples to a plurality of sensor modules (col. 10, lines 2-5, col. 8, lines 65-66 and Fig. 2).

Regarding dependent claim 29,

Eryurek teaches as set forth above to the apparatus of claim 25 including a display and wherein the component monitors data sent to the display (col. 4, lines 44-58; a display).

Regarding dependent claim 30,

Eryurek teaches as set forth above a process controller including the apparatus of claim 1 (Fig. 1).

Regarding dependent claim 31,

Eryurek teaches as set forth above to a device in a Safety Instrumented System (SIS) in accordance with claim 1 (col. 1, lines 34 – 41).

Regarding dependent claim 32,

Eryurek teaches as set forth above the apparatus of claim 1 wherein the component monitor monitors a plurality of process devices (col. 3, lines 34-36 and Fig. 6, element 208).

Regarding dependent claim 33,

Eryurek teaches as set forth above to the apparatus of claim 1 wherein the component monitor and safety response module are implemented in software (col. 10, lines 2-5).

Regarding dependent claim 34,

Eryurek does not expressly teach an apparatus wherein the software is to upgrade an existing process device.

Flaemig teaches to the software (Fig. 1, element 6; i.e. software of the processor) is to upgrade an existing process device (col. 1, lines 59-65 and col. 2, lines 44-50; i.e. the processor's capability to generate signals associated with the add-on device).

It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of **Eryurek** to include the software is to upgrade an existing process device to increase the integrity of measurement by positively notifying false indications are caused by loss of a pressure transmission fluid, which could previously go undetected; as well as, providing error information for failure of external conversion electronics and software (Flaemig: col. 1, lines 66-67 and col. 2, lines 1-7).

Regarding dependent claim 35,

Eryurek does not expressly teach a feature module to upgrade an existing process device.

Flaemig teaches a feature module (Fig. 1, element 6; i.e. software of the processor) to upgrade an existing process device (col. 1, lines 59-65 and col. 2, lines 44-50; i.e. the processor's capability to generate signals associated with the add-on device).

It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of **Eryurek** to include a feature module to upgrade an existing process device to increase the integrity of measurement by positively notifying false indications are caused by loss of a pressure transmission fluid, which could previously go undetected; as well as, providing error information for failure

of external conversion electronics and software (Flaemig: col. 1, lines 66-67 and col. 2, lines 1-7).

Regarding dependent claim 39,

Eryurek teaches as set forth above to the method of claim 37 wherein the sensing uses a sensor coupled to the process device (col. 3, lines 9-12).

6. **Claims 9 and 43 are rejected** under 35 U.S.C. 103(a) as being unpatentable over **Eryurek** in view of **Flaemig** and**,** and further in view of **Meyer-Grafe**, **Sederlund** and U.S. Patent No. 6,476,522 (hereinafter **Hays**).

Regarding dependent claims 9 and 43,

Eryurek teaches to an apparatus with a device interface (abstract and col. 1, lines 44-45).

Eryurek does not expressly teach to sensing power drawn by circuitry of the process device.

Flaemig, Meyer-Grafe nor **Sederlund** expressly teach sensing power drawn by circuitry of the process device.

Hays teaches sensing power drawn by circuitry of the process device (abstract and col. 1, lines 7-8; electronic components for controlling power drawn by a measurement device) for the purpose of controlling power drawn (col. 1, lines 7-8).

It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of **Eryurek** in view of **Flaemig** in further view of **Meyer-Grafe** and **Sederlund** to include sensing power drawn by circuitry of the process device to advantageously maximize power available for any type of sensor in the measurement device, as well as, provide a measurement device that supports a longer length of the power link (col. 2, lines 38-48).

7. **Claims 13, 14 and 46 are rejected** under 35 U.S.C. 103(a) as being unpatentable over **Eryurek** in view of **Flaemig,** and further in view of **Meyer-Grafe**, **Sederlund** and U.S. Patent No. 4,356,900 (hereinafter **Sommer**).

Regarding dependent claims 13, 14 and 46,

Eryurek teaches to an apparatus with a device interface (abstract and col. 1, lines 44-45).

Eryurek does not expressly teach the safety response module disconnects the process device from a process control loop.

Flaemig, Meyer-Grafe nor **Sederlund** expressly teach the safety response module disconnects the process device from a process control loop.

Sommer teaches the safety response module disconnects the process device from a process control loop (abstract; deactuate the clutch unit so as to disconnect the motor from the driving apparatus in response to abnormal operating conditions) for the purpose of safety (abstract).

It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of **Eryurek** in view of **Flaemig** in further view of **Meyer-Grafe** and **Sederlund** to include the safety response module disconnects the process device from a process control loop to achieve a soft start which enables the conveyor belt to tension in a generally even manner whereby any backlash or rebounding is minimized (col. 1, lines 35-39); as well as, provide an improved cam type control valve which is extremely resistant to operation degradation as a result of contaminants in the actuating fluid and which operates reliably to apply actuating fluid to the clutch unit in accordance with a predetermined profile so as to smoothly bring the driven apparatus up to full operating speed within a minimum amount of time and with a minimum amount of clutch slippage (col. 1, lines 62-67 and col. 2, lines 1-2).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references are cited to further show the state of the art with respect to diagnostic monitoring and control systems.

U.S. Patent Publication No. 2003/0236579 A1 discloses device diagnostics in industrial processes comprising field devices employing a field bus.

U.S. Patent Publication No. 2007/0270982 A1 discloses diagnostics of process control and monitoring systems for use with industrial processes.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER L. NORTON whose telephone number is (571)272-3694. The examiner can normally be reached on Monday-Friday between 9:00 a.m. - 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on 571-272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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